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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/501,452

11/04/2004

Xingzhou Jin

042586

9405

38834

7590

03/07/2008

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EXAMINER

WOODWARD, ANA LUCRECIA

ART UNIT

PAPER NUMBER

1796

MAIL DATE

DELIVERY MODE

03/07/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/501,452	JIN ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Ana L. Woodward	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 19 February 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

1. Claims 1, 3-10 and 16 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The specification, as originally filed, fails to provide express support for the "2,2-bis(3-amino-4-hydroxyphenyl)hexafluoropropane species now defining the identifier "HOCF3AB". While applicants make reference to a product description from Central Glass Co., Ltd. to support said change, said product description is currently not of record. Accordingly, absent said evidence, applicants' change to said identifier can not be appreciated.

It is, furthermore, noted that the description of "HOCF3AB" in lines 19 to 20 on page of the specification has not been amended to correct applicants' noted error.

2. Claims 5-8, 14 and 15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 5-8, it is unclear as to whether the "at least one solvent" is referring to the solvent (claim 1, line 3) used to dissolve the polyimide or to the solvent (claim 1, line 5) used to synthesize the polyimide.

In claim 5, cyclohexanone has been misspelled.

In claim 14, it is unclear as to what is meant by a "poor" solvent.

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In claim 14, lines 7 and 8, it is unclear as to what is meant by “a” reaction product.

***Claim Rejections - 35 USC § 102/103***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 11 and 12 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over US 6,627,377 (Itatani et al).

Itatani et al disclose a positive photosensitive polyimide composition which comprises a

i) (block) copolymer obtained from a tetracarboxylic dianhydride and a diamine component containing a phenolic hydroxyl group-containing diamine in combination with other diamines and ii) a photoacid generator. The polyimide is soluble in cyclohexanone, methyl lactate, anisole, ethyl acetate, etc. (column 11, lines 47-51). The imidation reaction between the dianhydride and diamine components is carried out in the presence of a catalyst resulting from a

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lactone and a base. The polyimide has a weight average molecular weight  $M_w$  of about 10,000 to about 100,000.

The compositions disclosed by the reference meet the requirements of the present claims in terms of the types of materials added. The onus is shifted to applicants to establish that the product of the present claims is not the same as or obvious from that set forth by the claims.

6. Claims 1, 3, 5-12 and 16 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over US 5,340,684 (Hayase et al)

Hayase et al disclose a photosensitive polyimide composition comprising a polyimide obtained from tetracarboxylic dianhydride and a diamine component containing a phenolic hydroxyl group-containing diamine in combination with other diamines and ii) a photosensitive agent. Suitable phenolic hydroxyl group-containing diamines include the same ones recited in applicants' claims (column 5, line 50 - column 6, line 2 and examples). The polyimide is soluble in ketones, ethers esters, N,N-dimethylformamide, etc. solvents (column 11, lines 25-46).

The reference provides various compositions meeting the requirements of the present claims in terms of the types of materials added. The onus is shifted to applicants to establish that the product of the present claims is not the same as or obvious from that set forth by the claims.

It is acknowledged that the composition in the above-rejected claims is claimed in a product-by-process format. Patentability considerations, however, are based on the product rather than on the process steps, i.e., while the claims may recite process limitations, it is the patentability of the product which must be established. The product presently claimed is deemed unpatentable because the reference discloses a product which reasonably appears to be either identical with or only slightly different from the claimed product. The onus is shifted to

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applicants to provide objective evidence that the product of the present claims is not the same as or obvious from that set forth by the claims.

***Claim Rejections - 35 USC § 103***

7. Claims 1, 3-10 and 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,627,377 (Itatani et al) in view of U.S. 5,340,684 (Hayase et al), both described hereinabove.

Itatani et al differs in essence from product-by-process claim 1, and its dependent claims, in not expressly exemplifying the particular hydroxyl group-containing aromatic diamines species now claimed by applicants. The hydroxyl group-containing aromatic diamines species preferred by both applicants and patentees are well known equivalents of each other and thus suitably interchangeable in analogous similar-such positive photosensitive polyimide compositions (Hayase et al column 5, lines 51-60, etc.). Itatani et al's aromatic diamine disclosure is deemed sufficiently generic to any aromatic diamine containing hydroxyl groups just so long as the hydroxyl group in the polyimide main chain is able to bind to the acid produced by the irradiation of the photoacid generator. Accordingly, it would have been obvious to one having ordinary skill in the art to have substituted applicants' preferred diamines for those disclosed/exemplified by Itatani et al with the reasonable expectation that said diamine species would successfully similarly bind to the acid produced by the irradiation of the photoacid generator. Absent evidence of unusual or unexpected results, no patentability can be seen in the use of one well-known hydroxyl group-containing aromatic diamines species for another.

Regarding process claim 13, Itatani et al differs only in not expressly exemplifying the use of applicants' particular reaction solvents. The reaction solvent species preferred by both

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applicants and patentees are well known equivalents of each other and thus suitably interchangeable in the synthesizing reactions of analogous similar-such photosensitive polyimides (Hayase et al column 10, lines 48-55, etc.). Itatani et al's reaction solvent disclosure is deemed sufficiently generic to any solvent normally used in the synthesis of similar-such polyimides. Accordingly, it would have been obvious to one having ordinary skill in the art to have substituted applicants' preferred reaction solvent species for those disclosed/exemplified by Itatani et al with the reasonable expectation of success. Absent evidence of unusual or unexpected results, no patentability can be seen in the use of one well-known reaction solvent for another.

As to process claim 14, the use of the recited reaction solvents are clearly disclosed by Itatani et al (column 10, lines 45-50) and, as such, their use would have been palpably obvious to one having ordinary skill in the art.

8. Claims 4 and 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over (Hayase et al) described hereinabove in view of U.S. US 6,627,377 (Itatani et al) described hereinabove and U.S. 5,502,143 (Oie et al).

As to product claim 4, the use of more than one of the recited aromatic diamines in the production of the polyimide is clearly disclosed by Hayase et al (column 6, lines 1-2) and, as such, their combine use would have been palpably obvious to one having ordinary skill in the art.

Hayase et al differ in essence from product claims 13-15 in not disclosing the preparation of the polyimide in the presence of a catalyst generated from a lactone and a base. The Itatani et al and Oie et al references teach that the use of a binary catalyst derived from a lactone and a base in the production of polyimides results in products having good storage

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stability and high purity because catalytic substances are not contained in the polyimide solution after the reaction. Accordingly, it is maintained that it would have been obvious to one having ordinary skill in the art to have produced the polyimide of Hayase et al in the presence of a lactone and a base with the reasonable expectation that the polyimide would be governed by good storage stability and high purity.

***Response to Amendment***

9. Applicant's amendments and arguments filed February 19, 2008 have been fully considered.

The rejections based on Chiang et al have been withdrawn.

Claims 11 and 12 remain rejected over Itatani et al under 35 USC 102/103 because the compositions disclosed by the reference meet the requirements of the present claims, as presently recited, in terms of the types of materials added.

***Conclusion***

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ana L. Woodward whose telephone number is (571) 272-1082. The examiner can normally be reached on Monday-Friday (8:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James J. Seidleck can be reached on (571) 272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ana L. Woodward/  
Primary Examiner  
Art Unit 1796